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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/669,565	09/26/2000	Yoshinori Rokugo	Q60968	3204

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EXAMINER	
NGUYEN, ALAN V	

ART UNIT	PAPER NUMBER
2662	3

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/669,565	ROKUGO ET AL.	
	Examiner	Art Unit	
	Alan Nguyen	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 24-26* is/are rejected.

7)☒ Claim(s) *23, 27, and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

There are numerous typographical and grammar errors throughout the specification.

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Transmission Method and Network System For Multiple Protocols Over a Bytestream "

Claim Objections

3. There are numerous typographical and grammar errors in the claims. For example, claim 3, line 22 should change "payload have a" to -- payload has a --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Doshi et al (US 5,936,965) hereinafter Doshi.

Regarding **claims 1 and 12** Doshi discloses a transmission method and system comprising:

transmitting a plurality of packets in multiplexing manner ***("a method and apparatus supporting the transmission of multiple application layer protocols multiplexed over a single bitstream for transmission over a single link", column 2, lines 5-8. The single link in Doshi's embodiment is called multi-protocol over a bytestream, MOB)***, which header in each packet includes a first field holding a signal indicative of a packet length ***(Doshi uses a scheme where all of the different formats are processed and converted as asynchronous block multiplexing protocol data units (ABM PDUs). In one embodiment, column 13, lines 55-65, discloses the use of variable-length PDUs to carry the packets. A length field describing the payload is added to each packet)***, a second field holding a signal indicative of a preferential order upon transferring the packet ***(column 6, lines 48-51 discloses that preferential order, which is calculated prior to conversion into ABM PDUs, is based on the delay sensitivity of the packet. Therefore, the header of each packet***

must contain information in regard to packet type. Column 9 lines 49-51 discloses that the entire packet is retained and inserted into the ABM payload and appended with an ABM header, thus retaining the original header that contained the delay sensitivity field), a third field holding a signal indicative of a kind of traffic ***(figure 2B, element 232 shows a type field)***, a fourth field holding a signal indicative of a header length ***(column 6, lines 29-32 discloses the variation of the ABM header length 'h' based on the desired level of error protection. In order for the transmitter to calculate PDU length for transmission over the MOB bytestream, the header length must be known. Column 11, lines 28-30 discloses the method of calculation using the value of the header length. Therefore, a header length value must be stored and accessed for each protocol data unit)***, a fifth field holding a control signal depending upon the kind of traffic ***(figure 2B, element 234 shows a reserved field that can be used as a type of control signal)***, and a sixth field holding a signal indicative of a result of CRC operation of the header ***(figure 2B, element 236 shows a detection CRC field)***, a payload holding information signal depending upon kind of the traffic and a signal indicative of a result of CRC operation of the payload ***(ABM payload, figure 2B, element 220)***. Further regarding claim 12, Doshi discloses:

a relay node ***(transmitter, figure 1, element 105)*** outputting the packet to an output path depending upon the destination address or a label added to the packet ***(elements 112-1 to 112-n)***received from the transmitting portion ***(HPPL, element 110; column 2, lines 24-26 discloses that each channel of ATM, STM, and VL packet units are queued and processed at the HPPL)***; and

- a receiving portion ***(receiver, element 108)*** separating the packet received from the relay node and inputting to a switching equipment, an asynchronous transmission mode switch or internet protocol router after performing a predetermined speed changing process ***(column 6, lines 10-18 discloses the receiver demultiplexing the ABM PDUs and reconstructs them back to their original bytestream. They are then transported to their respective higher application layer. It is inherent that the receiver portion must have means of speed changing since it is able to demultiplex the ABM bytestream into the original ATM, STM, and VL packet bytestreams)***.

Regarding **claim 2 and 13**, with the features of parent claim 1 and 12 addressed above, respectively, Doshi discloses where the traffic is one or more kinds among a synchronous transmission mode, asynchronous transmission mode and internet protocol ***(column 4, lines 49-54 discloses \ the system supports a variety of protocols including ATM, IP, and STM)***.

Regarding **claim 3 and 14**, with the features of parent claim 1 and 12 addressed above, respectively, Doshi discloses a payload that has a maximum length ***(column 3, lines 12-16 discloses that in the case of carrying ABM payloads where the majority of the packets being transmitted are ATM packets, the maximum payload length is 53 bytes)*** and a variable length ***(column 2, lines 33-36 discloses in the case where the majority of the packets being transmitted are IP packets, the number of payload bytes is variable)***.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4-9, 11, 15-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Endo

(US 6,377,574).

Regarding **claims 4 and 15**, with the features of parent claim 2 and 13 addressed above, respectively, Doshi discloses a header used in the packet for transmitting a synchronous transmission mode signal ***(column 7, lines 40-42 discloses that the appropriate header is appended to the STM frames)***. Regarding **claims 5 and 16**, Doshi discloses a field reserved for future use ***(figure 2B, element 234 shows a reserved field)***, and a header used in the packet for transmitting a asynchronous transmission mode signal ***(column 9, lines 1-5 discloses that the ABM header is appended to the ATM ABM payload)***. Regarding **claims 6 and 17, and 7 and 18**, Doshi discloses a field reserved for future use ***(figure 2B, element 234 shows a reserved field),*** and discloses a header used in the packet for transmitting an internet protocol signal ***(column 9, lines 65-67 discloses that the ABM header is appended to the variable length (i.e. IP) frames).***

Doshi fails to expressly disclose a fifth field that consists of a field holding a signal indicative of a destination address, a field holding a signal indicative of a sender

address, a field holding a remote alarm indicative of an alarm condition in a remote station, and a field holding a remote monitor indicative of a signal receiving condition of the remote station. Furthermore, regarding claims 5 and 16, Doshi fails to expressly disclose a fifth field that consists of a field holding a signal indicative of a destination address, a field holding a signal indicative of a sender address and a field reserved for future use. Furthermore, regarding claims 6 and 17, and 7 and 18, Doshi fails to expressly disclose a fifth field that consists of a field holding a signal indicative of a label and a field reserved for future use, and holding a signal indicative of a destination address and a field holding a route information and an identifier for controlling traffic class and flow spreading.

Endo, however, teaches a packet switch which transfers packets between line interfaces that contains a field ***(shown as prior art in figure 3)*** holding a signal indicative of a destination address, a field holding a signal indicative of a sender address ***(column 2, lines 2-5 discloses that a source address and destination address is included in each packet)***, a field holding a remote alarm indicative of an alarm condition in a remote station ***(column 7, lines 64-66 discloses a field containing an Alarm Indication Signal)***, and a field holding a remote monitor indicative of a signal receiving condition of the remote station ***(column 7, lines 65-67 discloses a field containing an Remote Defect Indication Signal, meaning that it can determine an error in a remote station)***. Regarding claims 6 and 17, Endo discloses a field holding a signal indicative of a label ***(column 1, lines 54-55 discloses the use of a protocol identifier (PID), for classification of the packet that is used***

as information for routing). Regarding claims 7 and 18, Endo discloses a field holding a route information and an identifier for controlling traffic class and flow spreading ***(column 2, lines 7-9 discloses a GFC field which is a general flow control information used to prevent conflict, or traffic between cells on a bus of the ATM switch)***.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's apparatus to have the feature of including source/destination fields, remote alarm fields, identification fields, and control fields into the header field, as taught by Endo. The motivation is a more reliable and accurate system of interfacing, since this header scheme complies to ITU-T (International Telecommunication Union-Telecommunication Standard) recommendation I.363, as explained by Endo on column 1, lines 45-58.

Regarding **claims 8 and 19**, with the features of parent claim 4 and 15 addressed above, Doshi, as modified, discloses the header further includes a extendable field by option following the sixth field ***(column 6, lines 28-32 discloses the optional use of an error protection field 216 in figure 2A)***.

Regarding **claims 9 and 20**, with the features of parent claim 1 and 13 addressed above, respectively, Doshi, as modified, discloses where the multiplexed packet further includes stuff bytes ***("unused ABM PDU transport bytes are padded to completely fill the unused space", column 14, lines 1-3)*** for maintaining a period of the multiplexed packet.

Doshi further fails to expressly disclose where the multiplexed packet further

includes an OAM packet used for maintenance of a network and management of operation.

Endo, however, teaches where the multiplexed packet further includes an OAM packet used for maintenance of a network and management of operation ***(column 2, lines 14-19 discloses the use of an OAM cell as a network management functioning group)***.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's apparatus to have the feature of including OAM packets as a network management functioning group in the transmission system, as taught by Endo. The motivation is a more reliable system that is less prone to error. The use of OAM packets provides error management and resource management, as disclosed by Endo on column 2, lines 52-55.

Regarding **claims 11 and 22** with the features of parent claim 9 and 20 addressed above, respectively, Doshi, as modified, discloses where the stuff byte and the packet length are converted into a complete representation system with taking a predetermined offset as a law for preventing them from generating continuous "O" ***(column 14, lines 20-24 of Doshi discloses that the protocol unit and the padding are used to calculate overall size before being multiplexed and appended with the header)***.

Regarding **claims 24 and 26**, with the features of parent claim 20 addressed above, Doshi, as modified, discloses where the relay node comprises a packet synchronization circuit establishing synchronization of the packet using the result of

CRC operation of the header included in the packet per input path and the stuff byte ***(column 14, lines 20-24 of Doshi discloses that the protocol unit, the CRC field, and the stuff byte are used to synchronize to the PDU boundary)***, a physical phase/data integrated switch determining an output path of each packet with reference to the destination address or label in the header of the packet, and a packet frame forming portion for re-forming a frame of the packet using the stuff byte ***(column 6, lines 10-18 discloses the receiver demultiplexing the ABM PDUs and reconstructs them back to their original bytestream. They are then transported to their respective higher application layer. It is inherent that the receiver portion must have means of speed changing since it is able to demultiplex the ABM bytestream into the original ATM, STM, and VL packet bytestreams)***.

8. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Endo in further view of Tomooka et al (US 2002/0024699) hereinafter Tomooka.

Regarding **claims 10 and 21** with the features of parent claim 9 and 20 addressed above, respectively, Doshi, as modified, discloses where the OAM packet consisted of a first holding a remote alarm indicative of alarm condition in the remote station ***(column 7, lines 64-66 discloses a field containing an Alarm Indication Signal)***, and a field holding a remote monitor indicative of the signal receiving condition in the remote station ***(column 7, lines 65-67 discloses a field containing an Remote Defect Indication Signal, meaning that it can determine an error in a remote***

station).

Doshi fails to disclose where the OAM packet is consisted of a field holding a byte for automatic protection switch, a field holding an order wire, and a field holding a data communication channel.

Tomooka, however, teaches the use of increased surveillance and maintenance in his transmission system. Tomooka discloses where the OAM packet is consisted of a field holding a byte for automatic protection switch ***(field [0091], table 2 discloses the use of an APS byte)***, a field holding an order wire ***(field [0101], lines 9-11 discloses a field for order wire)***, a field of holding a data communication channel ***(field [0101], lines 9-11 discloses a field for a data communication channel, DCC)***.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's apparatus to have the feature of including OAM packets as a network management functioning group in the transmission system, such as an APS byte, order wire, and a data communication channel, as taught by Tomooka. The motivation is a more reliable system that is less prone to error. The use of OAM packets provides error management and resource management, as disclosed by Tomooka on field [0092], lines 1-5.

9. Claim 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in view of Endo in further view of Padovani et al (US 6,574,211) hereinafter Padovani.

Regarding **claim 25** with the features of parent claim 24 addressed above, Doshi, as modified, further fails to expressly disclose where the packet synchronization

circuit uses X16 + X12 + X5 + 1 as generating polygonal expression in said CRC operation of said header.

Padovani, however, teaches in his data transmission system where the packet synchronization circuit uses X16 + X12 + X5 + 1 as generating polygonal expression in said CRC operation of said header ***(column 24, lines 6-11 discloses that the predetermined generator polynomial for CRC operation is X16 + X12 + X5 + 1)***.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's apparatus to utilize a predetermined generator polynomial for CRC operation, such as X16 + X12 + X5 + 1, as taught by Padovani. The motivation is a more reliable system that is less prone to error. This polynomial provides error detection over all bits transmitted, as disclosed by Padovani on column 24, lines 14-17.

Allowable Subject Matter

10. Claims 23, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 23,** the cited references taken individually or in combination fails to particularly disclose where the combination of a transmitting portion comprising a switching equipment constituted of a digital subscriber transporting device, a local switching equipment or a tandem switching equipment, a signal processing portion processing a synchronous transmission mode signal output from the switching

equipment, a synchronous transmission mode processing portion recognizing a leading position of the synchronous transmission mode signal and a data length, a first FIFO storing an output of the signal processing portion, a second FIFO storing an output of the synchronous transmission mode processing portion, a first packet composing portion input an output of the first FIFO and a second packet composing portion input an output of the FIFO; an asynchronous transmission mode switch, an asynchronous transmission mode cell order controlling portion input an asynchronous transmission mode cell output from the asynchronous transmission mode switch, a third FIFO storing an output of the asynchronous transmission mode cell order controlling portion and a third packet composing portion input an output of the third FIFO; an internet protocol router, an internet protocol preference control portion input an internet protocol packet data output from the internet protocol router, a fourth FIFO storing an output of the internet protocol preference control portion and a fourth packet composing portion input an output of the fourth FIFO; and a packet multiplexing portion multiplexing outputs of the first, second, third and fourth packet composing portions, a stuff byte generating portion generating a predetermined stuff byte for outputting, and an OAM packet generating portion generating an OAM packet for outputting.

Regarding **claim 27,** the cited references taken individually or in combination fails to particularly disclose where the process of a receiving portion comprising a packet demultiplexing portion separating received packets and an OAM packet detecting portion for detecting the OAM packet; a first packet decomposing portion processing a signaling packet in synchronous transmission mode input from the packet

demultiplexing portion for generating and outputting data, clock and a primitive, a first speed changing portion generating an original clock in the sender on the basis of a received clock, a second packet decomposing portion processing the packet in synchronous transmission mode input from the packet demultiplexing portion for generating and outputting data, clock and a primitive, a second speed changing portion, generating an original clock in the sender on the basis of a received clock, a switching equipment constituted of the digital subscriber transporting device, local switching equipment or a tandem switching equipment and receiving an outputs of the first and second speed changing portions; a third packet decomposing portion processing a signaling packet in asynchronous transmission mode input from the packet demultiplexing portion for generating and outputting data and clock, a third speed changing portion generating an original clock in the sender on the basis of a received clock, and the asynchronous transmission mode switch receiving an outputs of the third speed changing portion; and a fourth packet decomposing portion processing a signaling packet in internet protocol input from the packet demultiplexing portion for generating and outputting data and clock, a fourth speed changing portion generating an original clock in the sender on the basis of a received clock, and the internet protocol router receiving an outputs of the fourth speed changing portion.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to multi-protocol conversion:

US Patent (6,603,768) to Bleszynski et al

US Patent (5,568,475) to Doshi et al

US Patent (5,469,434) to Kurdzo et al

US Patent (6,389,035) to Bertagna et al

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

AVN
January 22, 2003

RICKY NGO
PRIMARY EXAMINER